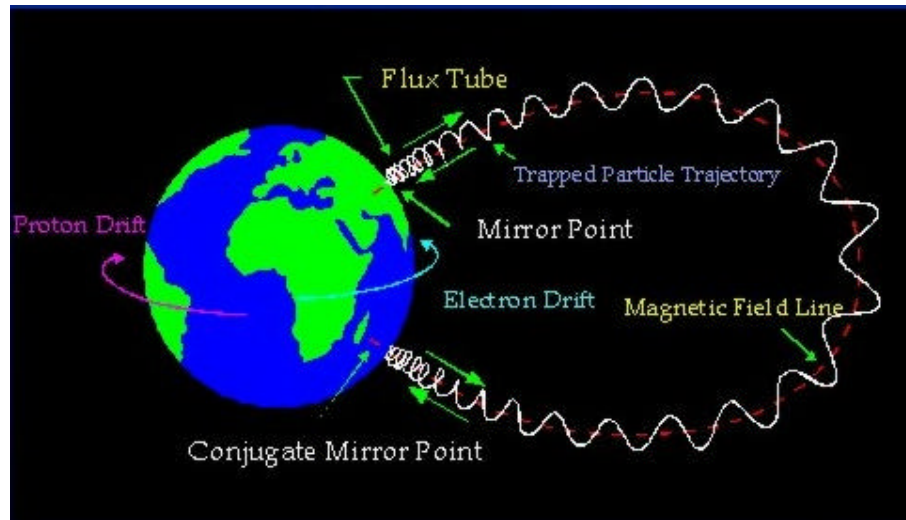




Trapped Proton Model

E3



Objective

This effort will develop an entirely new model of the trapped proton population based primarily on data from the TIROS/NOAA series of spacecraft and the CRRES satellite. The Trapped Proton Model (TPM) will replace the current AP8 model and will be constructed to provide the user with the omnidirectional integral proton flux as a function of energy, spacecraft position, and data (or solar activity). The model will be valid for at least one solar cycle after the data of issue, and will be constructed so that it can be updated periodically to account for secular variations in the geomagnetic field or to incorporate new data sets, as they become available.

Why Needed

Both piloted and robotic space missions require accurate models of the Earth's trapped energetic proton environment. For piloted missions, the concern is mainly total dose to the astronauts, particularly in long duration missions and during extravehicular activities (EVA's). The proton flux can also induce unwanted radiation backgrounds in remote sensing instruments. All spacecraft are potentially susceptible to single event effects, which affect electronic systems and can cause system failure.

Point of Contact

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Sponsor

NASA Space Environments and Effects (SEE) Program